

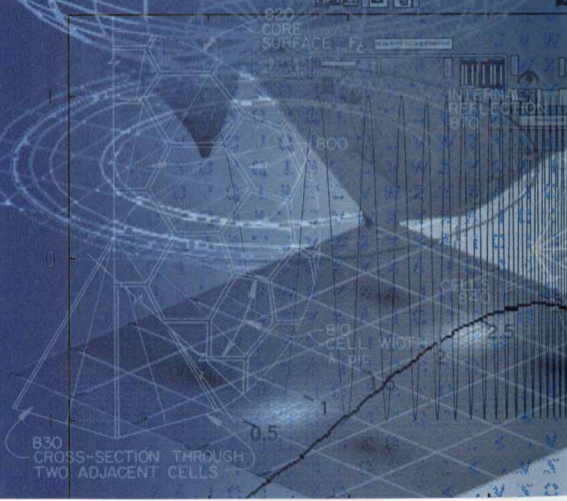


UNIVERSITÉ  
**Concordia**  
UNIVERSITY

**Department of  
Mechanical & Industrial  
Engineering**

# **Industrial Engineering**

**[www.me.concordia.ca](http://www.me.concordia.ca)**



# Industrial Engineering

Industrial engineering concerns the design, development, implementation, and evaluation of integrated systems of people, knowledge, equipment, energy, and material. Industrial engineering draws upon the principles and methods of engineering analysis and synthesis, as well as mathematics, physical, and social sciences. Industrial engineers work to eliminate wastes of time, money, materials, energy, and other resources. Industrial engineers also serve as a bridge between customers and design and manufacturing engineers.

## Why Choose Industrial Engineering at Concordia?

Industrial Engineering brings together a diverse base of mathematical and scientific knowledge to design, improve, and install integrated systems of people, material, information, equipment, and energy. They have the role to analyse operational processes and deliver performance improvements that allow the customer to receive his/her end product in less time, with higher quality and at a reduced cost. It is well known that "Engineers make things, Industrial Engineers make things better!" As you can image, just about every organization has a system that enables it to function. Hence, the job opportunities for Industrial Engineers are not only restricted to engineering firms. Industrial engineering skills can be used in hospitals, banks, airlines, transportation services and retail stores. At Concordia University, Industrial Engineering is integrated with the Mechanical Engineering department allowing the students to better understand technical processes.

Students in Industrial Engineering at Concordia University not only benefit in learning theoretical views of production planning, engineering economics, computer integrating manufacturing, facilities design, human factors and ergonomics, simulation, operations research, statistics, stochastic and quality control, they also have the opportunity to learn how to apply the theory in internships with business strategies such as Lean manufacturing, Six Sigma and Theory Of Constraints (TOC). Internships are provided to the students from well-known organizations like the Concordia Co-Op program or Concordia's Institute of Aerospace



Design and Innovation (CIADI) where jobs are offered in leading companies in Montreal, France, Germany, Italy, Portugal or Poland. Industrial Engineering Program at Concordia University is the only English program in Quebec.

## **Companies Which Hire Concordia Industrial Engineering Graduates.**

Once graduating from our program, you will be ready for a career in many areas such as: Ergonomist, Facilities Designer, Manufacturing Systems Engineer, Manufacturing or Operations Supervisor, Operations Analyst, Process Engineer, Quality Control Specialist/Engineer, Safety Engineer, Space Planner, Supply chain manager, Logistic planner, Aircraft fleet and crew scheduler.

Wyeth Pharmaceuticals  
Kraft  
Aldo Group  
Atomic Energy of Canada Limited  
Schneider Electric  
C & D Zodiac Aerospace  
Pratt & Whitney of Canada,  
Bombardier Aerospace  
Bell Helicopter  
CAE Electronics  
General Motors  
Spar Aerospace  
General Electrics  
Air Canada  
Transport Canada  
Bendix-Avelex  
CDI Aerospace  
ComDev  
IMP Aerospace  
Canadian Space Agency  
National Research Council  
Natural Resources Canada  
AirScience Technologies  
Aesus Systems  
Alcan Inc.  
Canada Green Technologies  
Atlantic Aluminum Ltd.  
Medical International Technologies  
HTS Engineering  
Matrox Electronic Systems  
Racan Carrier  
SKF Canada Ltd.  
Torr Canada Ltd.  
IBM Canada Ltd.  
Silgan Plastics Canada Inc.  
Reebok-CCM  
Dassault Systèmes Inc.  
Ivaco Rolling Mills

## Program Structure

The B. Eng. in Industrial Engineering is a 120-credit program which normally takes four years of full-time study after CEGEP. Courses in this program are combination of engineering core, Industrial engineering core and technical electives as:

- The "**Engineering Core**" (30.5 credits) includes engineering fundamentals such as engineering mathematics, probability and statistics in engineering, engineering management and economics, health and safety and professional practice.
- The "**Industrial Engineering Core**" (78.5 credits) includes the fundamentals of Industrial Engineering such as Production and Manufacturing Systems, Simulation of Industrial Systems, Production Engineering, Industrial Operations Research, Stochastic Models in Industrial Engineering, Quality Control and Reliability, Human Factors Engineering, Facilities Design and Material Handling Systems, Inventory Control.
- **Technical Electives** (11 credits) enable students to endeavour different directions based on their career objectives through courses such as Management Information Systems, Decision Support Systems, Fundamentals of Electronic Business, Safety Engineering, Product Design and Development, Decision Models in Service Sector, Advanced Concepts in Quality Improvement, Fundamentals of Control Systems

## Industrial Engineering Co-op Program

The co-op program in Industrial Engineering formally integrates a student's academic studies with work experience in a co-operative industrial organization. The program consists of study and work terms. Students undertake full-time jobs during the work terms in appropriate external organizations, thereby complementing their academic knowledge acquired in the classroom.

For more information about Industrial Engineering co-op program, please visit <http://coop.concordia.ca/programs/engcompsci/industrial.shtml>



## **Engineering Core**

ELEC 275 Principles of Electrical

EMAT 213 Engineering Ordinary

Differential Equations

EMAT 233 Advanced Calculus

ENCS 282 Technical Writing and Communication

ENGR 201 Professional Practice and Responsibility

ENGR 202 Sustainable Development and

Environmental Stewardship

ENGR 301 Engineering Management

Principles and Economics

ENGR 371 Probability and Statistics in Engineering

ENGR 391 Numerical Methods in Engineering

ENGR 492 Impact of Technology on Society

## **Industrial Engineering Core**

ACCO 220 Financial and Managerial Accounting

ENCS 245 Mechanical Analysis

ENGR 244 Mechanics of Materials

ENGR 251 Thermodynamics I

ENGR 311 Transform Calculus and Partial

Differential Equations

INDU 211 Introduction to Production and

Manufacturing Systems

INDU 311 Simulation of Industrial Systems

INDU 320 Production Engineering I

INDU 323 Industrial Operations Research

INDU 330 Engineering Management

INDU 371 Stochastic Models in Industrial Engineering

INDU 372 Quality Control and Reliability

INDU 411 Computer Integrated Manufacturing

INDU 412 Human Factors Engineering

INDU 420 Production Engineering II

INDU 421 Facilities Design and Material

Handling Systems

INDU 423 Inventory Control

INDU 430 Operations Research II

INDU 490 Capstone Industrial Engineering Design Project

MECH 211 Mechanical Engineering Drawing

MECH 215 Programming for Mechanical

and Industrial Engineers

MECH 221 Materials Science

MECH 311 Manufacturing Processes

MECH 313 Machine Drawing and Design

MECH 370 Modelling, Simulation and

Analysis of Physical Systems

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**Hours of Operation:**  
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**9 a.m.-5 p.m.**

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